TEST REPORT ON CEMENT

NAME OF WORK: Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing: 13/12/2017

SAMPLE ID : Cement

PHYSICAL REQUIREMENTS;

Sl no	Description	Test Method as per IS	Test Result	Remarks
1	a) Initial setting time	IS: -4031 (part-5)	128 Minutes	ok
	b) Final setting time	IS: -4031 (part-5)	460Minutes	ok
2	Soundness	IS: 4031 (part-3) La-Chatelier method	3.0 mm	ok
3	Standard Consistency	IS: -4031 (part-4)	25.00%	ok
4	Compressive Strength			
	a) 3 Days	Mpa	26	ok
	b) 7 Days	Mpa	37	ok

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

B V H Consulting Engineers
Survey and Engineering Project Consultants

TEST REPORT ON FINE AGGREGATE

NAME OF WORK: Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing: 13/12/2017

SAMPLE ID : Sand

Date of testing : **Total Wt of Aggregate in Gms ;**1350

IS Sieve Size in mm	Weight of Retained (gms)	Cumulative Weight of Retained (gms)	Cumulative % of Retained (gms)	Cumulative % of passing	Percentage Passing for grading zone II as per IS 383-1970
10	0	0	0	100	100
4.75	30	30	2.22	97.78	90-100
2.36	62	92	6.81	93.82	75-100
1.18	90	182	13.48	86.52	55-90
600 Micron	480	662	49.03	50.97	35-59
300 Micron	358	1020	75.55	24.45	8-30
150 Micron	325	1345	99.62	0.38	0-10

Assistant Executive Engineer
Kodigehalli
Yelahanka Bangalore

AE(QC)

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

B V H Consulting Engineers
Survey and Engineering Project Consultants

TEST REPORT ON COARSE AGGREGATE

NAME OF WORK: Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing: 13/12/2017

SAMPLE ID : 20 mm Aggregate

Date of testing

Total Wt of Aggregate in Gms ;2300

IS Sieve Size in mm	Weight of Retained (gms)	Cumulative Weight of Retained (gms)	Cumulative % of Retained (gms)	Cumulative % of passing	Percentage Passing for grading zone II as per IS 383-1970
40	0	0	0	100	100
20	195	195	8.125	91.87	95-100
10	1150	1345	56.04	43.96	25-55
4.75	955	2300	95.87	4.125	0-10

Assistant Executive Engineer
Kodigehalli
Bruhat Bangalore
Bangalore

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

TEST REPORT ON M20 GRADE CONCRETE

NAME OF WORK: Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Size of cubes : 150 x150 x 150 mm

Cross Sectional area : 22500 mm2

Grade of concrete : M20

Compressive Strength as on : 28 Days

Sl no	Date of casting	Date of testing	Failure load	Compressive Strength (N/mm2)	Average Compressive Strength (N/mm2)
1	15-12-2017	12-01-2018	485	21.56	
2	15-12-2017	12-01-2018	480	21.33	21.41
3	15-12-2017	12-01-2018	480	21.33	

Assistant Executive Engineer
Kodigehalli

B.V.H. Consulting Engineers Bangalore

AE (Civil)

B V H Consulting Engineers
Survey and Engineering Project Consultants

TEST REPORT ON M20 GRADE CONCRETE

NAME OF WORK: Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Size of cubes : 150 x150 x 150 mm

Cross Sectional area : 22500 mm2

Grade of concrete : M20

Compressive Strength as on : 28 Days

Sl no	Date of casting	Date of testing	Failure load	Compressive Strength (N/mm2)	Average Compressive Strength (N/mm2)
1	15-12-2017	12-01-2018	485	21.56	
2	15-12-2017	12-01-2018	480	21.33	21.41
3	15-12-2017	12-01-2018	480	21.33	

Assistant Engineer
Kodigehalli
Bruhat Bangalore

AE(Ag)

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

B V H Consulting Engineers
Survey and Engineering Project Consultants

GRADIATION FOR WMM

MORTH TABLE – 400 - 11

NAME OF WORK:Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name of road: Improvements to Roads and drains at Sneha nagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :Sneha nagara **cross roads1&2**

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 07-01-2018

IS Sieve Size in mm	Weight Retained (gms)	Cumulative Weight Retained (gms)	Cumulative % of Retained	Cumulative % of Passing	Specific Limits
53	0	0	0	100	100
45	275	275	3.1	96.9	95-100
22.4	2665	2940	33.3	66.7	60-80
11.2	1345	4285	48.5	51.5	40-60
4.75	1290	5575	63.1	36.9	25-40
2.36	1025	6600	74.7	25.3	15-30
0.600	965	7565	85.6	14.4	8-22
0.075	940	8505	96.2	3.8	0-8

Note:

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AE(Tech)

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Aggregate Impact Value (W.M.M.)

IS : 2386 Part IV

NAME OF WORK:Consultancy service for Project Management consultant for the works of package Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 byatarayanapura division as per annexure UDD 217 SFC 2016 dated 28.5.2016 for ward number 7.

Sub-Name of road: : Improvements to Roads and drains at Sneha nagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :Sneha nagara **cross roads1&2**

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 07-01-2018

Sl. No	Details	Trial No.		Average
		1	2	
1	Total Weight of aggregate sample filling the cylindrical measure = W_1 g	388	385	
2	Weight of aggregate passing throw 2.36 mm IS sieve after the test = W_2 g	89	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	355	358	
4	Aggregate Impact value = percent fine	22.94	22.34	22.64
	$100*(W_2/W_1)\%$			

Assistant Executive Engineer Palike
Kodigehalli
Bruhat Bangalore
Bangalore

Comments:

- **Maximum allaovable Aggregate Impact value for Wet Mix Macadam is 30%.**

Note:

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Determination of Flakiness Index & Elongation Index of Coarse Aggregate.

NAME OF WORK:Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name Of Road : : Improvements to Roads and drains at Sneha nagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :Sneha nagara **cross roads1&2**

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 07-01-2018

Result: Flakiness Index = 11.58%.

Elongation Index = 13.58%.

Result: Combined Flakiness & Elongation Index = 25.16%.

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%.

Note:

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AE(W7)

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TEST FOR PRIME COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work :Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing: 18/01/2018

Tray no.	1	2
Weight of the tray(b)gms	1688	1688
Weight of the tray with prime(a)gms	1713.75	1712.92
Weight of prime(a-b)gms	25.75	24.92
Tray area (sqm)	300*300=0.09sqm	300*300=0.09sqm
Rate of spray (kg/sqm)	0.02575/0.09=0.28 kg/sqm	0.02492/0.09=0.27 kg/sqm
Avg. Rate of spray (kg/sqm)	0.275	

Specified rate as per Specification: 0.25 Kg/sqm

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Assistant Engineer Kodigehalli Sub Division BBMP Bangalore

AE(WZ)

B V H Consulting Engineers

Survey and Engineering Project Consultants

TEST FOR PRIME COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work :Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing: 19/01/2018

Determination	Unit	Trial no.	
Size of tray in (sqm)		0.45x0.45	0.45x0.45
Area of tray (a)	Sqm	0.2025	0.2025
Initial Wt of empty tray(b)	Kg	1.625	1.627
Final Wt of tray with prime coat (c)	Kg	1.763	1.756
Weight of Prime coat (d=c-b)	Kg	0.1380	0.1290
Rate of Spray of prime coat	Kg/Sqm	0.681	0.637
Average	Kg/Sqm	0.659	
Specified Limit	Kg/Sqm	0.60 Kg/sqm	

Note:

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A/p U/s. N.D.
AE(Lab)

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BITUMEN EXTRACTION TEST [FIELD TEST]

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work :Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing: 20/01/2018

Tests on Dense graded Bituminous Macadam				
Test No 1 TestTime:			**Test Time**	**10.00 am**
Sample No	**Initial Weight of the Mix [w1], in g**	**Weight of mix after extraction of Bitumen [w2], in g**	**Difference in weight, w=[w1-w2], in g**	**Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %**
1	500	474	26	5.2
2	500	474	26	5.2
Test No 2 Time:		**Test**	**Test Time: 3.00 pm**	
Sample No	**Initial Weight of the Mix [w1], in g**	**Weight of mix after extraction of Bitumen [w2], in g**	**Difference in weight, w=[w1-w2], in g**	**Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %**
1	500	475	25	5.0
2	500	475	25	5.0

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AE(WZ)

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BITUMEN EXTRACTION TEST [FIELD TEST]

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work :Improvements to Roads and drains at Snehanagara, in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : **Benaka Developers & Projects Pvt. Ltd.**

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing: 22/01/2018

Tests on Bituminous Concrete				
Test No 1		**Test**	**Test Time**	**10.30 AM**
Time:				
Sample No	**Initial Weight of the Mix [w1], in g**	**Weight of mix after extraction of Bitumen [w2], in g**	**Difference in weight, w=[w1-w2], in g**	**Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %**
1	500	473	27	5.4
2	500	473	27	5.4
Test No 2		**Test**	**Test Time: 2.30 pm**	
Time:				
Sample No	**Initial Weight of the Mix [w1], in g**	**Weight of mix after extraction of Bitumen [w2], in g**	**Difference in weight, w=[w1-w2], in g**	**Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %**
1	500	474	26	5.2
2	500	474	26	5.2

Note:

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AE(QC)

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GRADIATION FOR WMM

MORTH TABLE – 400 - 11

NAME OF WORK:Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name of road : Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :L&T Colony main road Near Amrutha Clinic& CROSS ROADS 4&6 OF L&T Colony

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 02-01-2018

IS Sieve Size in mm	Weight Retained (gms)	Cumulative Weight Retained (gms)	Cumulative % of Retained	Cumulative % of Passing	Specific Limits
53	0	0	0	100	100
45	117	117	1.4	98.6	95-100
22.4	2514	2631	30.9	69.1	60-80
11.2	1478	4109	48.3	51.7	40-60
4.75	1352	5461	64.2	35.8	25-40
2.36	998	6459	75.9	24.1	15-30
0.600	945	7404	87.0	13.0	8-22
0.075	902	8306	97.6	2.4	0-8

Note:

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AE(AG)

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

Aggregate Impact Value (W.M.M.)

IS : 2386 Part IV

NAME OF WORK:Consultancy service for Project Management consultant for the works of package Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 byatarayanapura division as per annexure UDD 217 SFC 2016 dated 28.5.2016 for ward number 7.

Sub-Name of road: Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :L&T Colony main road Near Amrutha Clinic& CROSS ROADS 4&6 OF L&T Colony

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 02-01-2018

Sl. No	Details	Trial No.		Average
		1	2	
1	Total Weight of aggregate sample filling the cylindrical measure = W_1 g	388	385	
2	Weight of aggregate passing throw 2.36 mm IS sieve after the test = W_2 g	89	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	355	358	
4	Aggregate Impact value = percent fine	22.94	22.34	22.64
	$100*(W_2/W_1)$%			

Comments:

- **Maximum allaovable Aggregate Impact value for Wet Mix Macadam is 30%.**

Note:

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Assistant Executive Engineer Kodigehalli Project Division Bruhat Bangalore

B.V.H. Consulting Engineers Bangalore

AE(NE)

Determination of Flakiness Index & Elongation Index of Coarse Aggregate.

*NAME OF WORK:*Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name Of Road : Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :L&T Colony main road Near Amrutha Clinic& CROSS ROADS 4&6 OF L&T Colony

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 02-01-2018

Result: Flakiness Index = 11.58%.

Elongation Index = 13.58%.

Result:Combined Flakiness & Elongation Index = 25.16%.

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%.

Note:

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B.V.H. Consulting Engineers Bangalore

Mbpll. N.D
AE(W7)

GRADIATION FOR WMM

MORTH TABLE – 400 - 11

NAME OF WORK:Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name of road : Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :Cross Road to Amruthalli main Road and Varadaraju Layout 8 CROSS at RHS

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 03-01-2018

IS Sieve Size in mm	Weight Retained (gms)	Cumulative Weight Retained (gms)	Cumulative % of Retained	Cumulative % of Passing	Specific Limits
53	0	0	0	100	100
45	117	117	1.4	98.6	95-100
22.4	2514	2631	30.9	69.1	60-80
11.2	1478	4109	48.3	51.7	40-60
4.75	1352	5461	64.2	35.8	25-40
2.36	998	6459	75.9	24.1	15-30
0.600	945	7404	87.0	13.0	8-22
0.075	902	8306	97.6	2.4	0-8

Note:

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AE(W7)

Aggregate Impact Value (W.M.M.)

IS : 2386 Part IV

NAME OF WORK:Consultancy service for Project Management consultant for the works of package Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 byatarayanapura division as per annexure UDD 217 SFC 2016 dated 28.5.2016 for ward number 7.

Sub-Name of road:Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :Cross Road to Amruthalli main Road and Varadaraju Layout 8 CROSS at RHS

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 03-01-2018

Sl. No	Details	Trial No.		Average
		1	2	
1	Total Weight of aggregate sample filling the cylindrical measure = W_1 g	386	383	
2	Weight of aggregate passing throw 2.36 mm IS sieve after the test = W_2 g	89	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	366	361	
4	Aggregate Impact value = percent fine	23.06	22.19	22.63
	$100*(W_2/W_1)\%$			

Comments:

- **Maximum allaovable Aggregate Impact value for Wet Mix Macadam is 30%.**

Note:

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Assistant Executive Engineer
Kodigehalli Sub Division
Byatarayanapura

AE(WZ)

Determination of Flakiness Index & Elongation Index of Coarse Aggregate.

NAME OF WORK:Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name Of Road : Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :Cross Road to Amruthalli main Road and Varadaraju Layout 8 CROSS at RHS

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 03-01-2018

Result: Flakiness Index = 12.32%.

Elongation Index = 13.63%.

Result:Combined Flakiness & Elongation Index = 25.95%.

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%.

Note:

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AE(Lab)

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

TEST FOR PRIME COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work: Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 12-01-2018

Determination	Unit	Trial no.	
Size of tray in (sqm)		0.45x0.45	0.45x0.45
Area of tray (a)	Sqm	0.2025	0.2025
Initial Wt of empty tray(b)	Kg	1.625	1.627
Final Wt of tray with prime coat (c)	Kg	1.765	1.755
Weight of Prime coat (d=c-b)	Kg	0.1400	0.1280
Rate of Spray of prime coat	Kg/Sqm	0.691	0.632
Average	Kg/Sqm	0.662	
Specified Limit	Kg/Sqm	0.60 Kg/sqm	

Note:

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3. Any Query regarding the report must be within 30 days from the date of testing.

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TEST FOR PRIME COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 13-01-2018

Determination	Unit	Trial no.	
Size of tray in (sqm)		0.45x0.45	0.45x0.45
Area of tray (a)	Sqm	0.2025	0.2025
Initial Wt of empty tray(b)	Kg	1.625	1.627
Final Wt of tray with prime coat (c)	Kg	1.760	1.750
Weight of Prime coat (d=c-b)	Kg	0.1350	0.1230
Rate of Spray of prime coat	Kg/Sqm	0.667	0.607
Average	Kg/Sqm	0.637	
Specified Limit	Kg/Sqm	0.60 Kg/sqm	

Note:

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AE(Tech)

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

TEST FOR TACK COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work: Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 14-01-2018

Tray no.	1	2
Weight of the tray(b)gms	1688	1688
Weight of the tray with prime(a)gms	1713.5	1713
Weight of prime(a-b)gms	25.5	25
Tray area (sqm)	300*300=0.09sqm	300*300=0.09sqm
Rate of spray (kg/sqm)	0.0255/0.09=0.28 kg/sqm	0.025/0.09=0.27 kg/sqm
Avg. Rate of spray (kg/sqm)	0.275	

Specified rate as per Specification: 0.25 Kg/sqm

Note:

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AE(Tech)

TEST FOR TACK COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 18-01-2018

Tray no.	1	2
Weight of the tray(b)gms	1688	1688
Weight of the tray with prime(a)gms	1713.75	1712.92
Weight of prime(a-b)gms	25.75	24.92
Tray area (sqm)	300*300=0.09sqm	300*300=0.09sqm
Rate of spray (kg/sqm)	0.02575/0.09=0.28 kg/sqm	0.02492/0.09=0.27 kg/sqm
Avg. Rate of spray (kg/sqm)	0.275	

Specified rate as per Specification: 0.25 Kg/sqm

Note:

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BITUMEN EXTRACTION TEST [FIELD TEST]

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work: Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 14-01-2018

Tests on Dense graded Bituminous Macadam				
Test No 1 Time:		Test	Test Time	09.30 am
Sample No	Initial Weight of the Mix [w1], in g	Weight of mix after extraction of Bitumen [w2], in g	Difference in weight, w=[w1-w2], in g	Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %
1	500	474	26	5.2
2	500	474	26	5.2
Test No 2 Time:		Test	Test Time: 2.30 pm	
Sample No	Initial Weight of the Mix [w1], in g	Weight of mix after extraction of Bitumen [w2], in g	Difference in weight, w=[w1-w2], in g	Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %
1	500	475	25	5.0
2	500	475	25	5.0

Note:

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B.V.H. Consulting Engineers Bangalore

AE(W)

B V H Consulting Engineers

Survey and Engineering Project Consultants

BITUMEN EXTRACTION TEST [FIELD TEST]

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains at L&T Colony Near Amrutha Clinic in ward No 07 - Byatarayanapura - Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 18-01-2018

Tests on Bituminous Concrete				
Test No 1		**Test**	**Test Time**	**10.30AM**
Time:				
Sample No	**Initial Weight of the Mix [w1], in g**	**Weight of mix after extraction of Bitumen [w2], in g**	**Difference in weight, w=[w1-w2], in g**	**Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %**
1	500	473	27	5.4
2	500	473	27	5.4
Test No 2		**Test**	**Test Time: 2.30 pm**	
Time:				
Sample No	**Initial Weight of the Mix [w1], in g**	**Weight of mix after extraction of Bitumen [w2], in g**	**Difference in weight, w=[w1-w2], in g**	**Percentage of Bitumen Extracted = [(w /w1)*100]-100, in %**
1	500	474	26	5.2
2	500	474	26	5.2

Assistant Executive Engineer
Kodigehalli Sub Division
Yuhat Bangalore Mahanagara Palike
Bangalore-560 092

Note:

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B.V.H. Consulting Engineers Bangalore

AE(Lab)

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

GRADIATION FOR WMM

MORTH TABLE – 400 - 11

NAME OF WORK:Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name of road :Improvements to Roads and drains near ChikkaMuniyappa house at Amruthahalli in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :ChikkaMuniyappa house road

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 01-01-2018

IS Sieve Size in mm	Weight Retained (gms)	Cumulative Weight Retained (gms)	Cumulative % of Retained	Cumulative % of Passing	Specific Limits
53	0	0	0	100	100
45	117	117	1.4	98.6	95-100
22.4	2514	2631	30.9	69.1	60-80
11.2	1478	4109	48.3	51.7	40-60
4.75	1352	5461	64.2	35.8	25-40
2.36	998	6459	75.9	24.1	15-30
0.600	945	7404	87.0	13.0	8-22
0.075	902	8306	97.6	2.4	0-8

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AE(W)

B V H Consulting Engineers

Survey and Engineering Project Consultants

Aggregate Impact Value (W.M.M.)

IS : 2386 Part IV

NAME OF WORK:Consultancy service for Project Management consultant for the works of package Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 byatarayanapura division as per annexure UDD 217 SFC 2016 dated 28.5.2016 for ward number 7.

Sub-Name of road: Improvements to Roads and drains near ChikkaMuniyappa house at Amruthahalli in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer Byatarayanapura Division,NO.2152/20,Defence colony, Sahakara Nagara,Banglore-92

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :ChikkaMuniyappa house road

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 01-01-2018

Sl. No	Details	Trial No.		Average
		1	2	
1	Total Weight of aggregate sample filling the cylindrical measure = W_1 g	386	383	
2	Weight of aggregate passing throw 2.36 mm IS sieve after the test = W_2 g	89	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	366	361	
4	Aggregate Impact value = percent fine	23.06	22.19	22.63
	$100*(W_2/W_1)\%$			

Comments:

- **Maximum allaovable Aggregate Impact value for Wet Mix Macadam is 30%.**

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
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N.P AE(LD)

#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

Determination of Flakiness Index & Elongation Index of Coarse Aggregate.

NAME OF WORK:Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7& 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub-Name Of Road : Improvements to Roads and drains near ChikkaMuniyappa house at Amruthahalli in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

SAMPLE ID :ChikkaMuniyappa house road

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 01-01-2018

Result: Flakiness Index = 12.32%.

Elongation Index = 13.63%.

Result:Combined Flakiness & Elongation Index = 25.95%.

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%.

Note:

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3. Any Query regarding the report must be within 30 days from the date of testing.

Assistant Engineer ... Palike ... Bangalore

Consulting Engineers Bangalore

AE(Civil)

TEST FOR PRIME COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains near Chikka Muniyappa house at Amruthahalli in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : **Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92**

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 14/01/2018

Determination	Unit	Trial no.	
Size of tray in (sqm)		0.45x0.45	0.45x0.45
Area of tray (a)	Sqm	0.2025	0.2025
Initial Wt of empty tray(b)	Kg	1.625	1.627
Final Wt of tray with prime coat (c)	Kg	1.763	1.756
Weight of Prime coat (d=c-b)	Kg	0.1380	0.1290
Rate of Spray of prime coat	Kg/Sqm	0.681	0.637
Average	Kg/Sqm	0.659	
Specified Limit	Kg/Sqm	0.60 Kg/sqm	

Note:

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#42/1, 6th Main Road, Jnanajyothi Nagara, Malathalli, Bangalore – 560 056.Tel: 080-23241948, Fax: 080 - 23240685, Cell : 9964339888 E-mail : mbnk2278@yahoo.com

TEST FOR TACK COAT

NAME OF WORK : Package2 Improvements to roads and drains providing amenities construction of RO water plant Bangalore one center in ward no.7 & 8 Byatarayanapura Division as per annexure Go No UDD 217 SFC 2016 Dated 28.5.2016 works Sl No for Ward No. 7 12 To 23 & Ward No. 8 24 To 32.

Sub - Name of Work : Improvements to Roads and drains near Chikka Muniyappa house at Amruthahalli in ward No 07 - Byatarayanapura, Kodigehalli Sub Division.

Client : Executive Engineer, Byatarayanapura Division, NO.2152/20, Defence colony, sahakara Nagara, Bangalore-92

Name of the Agency : Benaka Developers & Projects Pvt. Ltd.

Reference: Agreement NO.BBMP/EE/BTP/AG/007/16/000043/16-17 Dated : 16/01/2018

Date of Testing : 15/01/2018

Tray no.	1	2
Weight of the tray(b)gms	1688	1688
Weight of the tray with prime(a)gms	1714	1713
Weight of prime(a-b)gms	26	25
Tray area (sqm)	300*300=0.09sqm	300*300=0.09sqm
Rate of spray (kg/sqm)	0.026/0.09=0.29 kg/sqm	0.025/0.09=0.27 kg/sqm
Avg. Rate of spray (kg/sqm)	0.28	

Specified rate as per Specification: 0.25 Kg/sqm

Note:

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3. Any Query regarding the report must be within 30 days from the date of testing.

B.V.H. Consulting Engineers Bangalore

A.E(07)

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